CLAIMS

1. A processor-readable medium comprising processor-executable instructions configured for:

identifying instructions executing on a processor;

receiving power consumption data from a power measurement circuit; and

correlating the power consumption data with the identified instructions.

2. A processor-readable medium as recited in claim 1, wherein the identifying comprises:

interrupting the processor;

sampling a program counter of the processor;

scanning a lookup table to find an address indicated by the program counter; and

determining an instruction located at the address.

3. A processor-readable medium as recited in claim 1, wherein the receiving comprises:

querying the power measurement circuit; and

receiving digital power readings from the power measurement circuit based on the querying.

4. A processor-readable medium as recited in claim 1, wherein the receiving comprises receiving digital power readings from the power measurement circuit at preset time intervals.

5. A processor-readable medium as recited in claim 1, wherein the correlating comprises associating with an identified instruction, a measured amount of power consumed during execution of the identified instruction on the processor.

6. A processor-readable medium as recited in claim 1, wherein the correlating comprises generating a power profile that includes a plurality of power consumption values and a plurality of identified instructions, wherein each power consumption value is associated with an identified instruction in the power profile.

7. A processor-readable medium as recited in claim 6, wherein the power profile is selected from the group comprising:

a table having pairs of data, each pair of data comprising a power consumption value and an identified instruction; and

a graph correlating power consumption values with identified instructions.

8. A processor-readable medium as recited in claim 1, wherein the power consumption data comprises power consumption values measured during execution of the instructions on the processor.

9. A processor-readable medium as recited in claim 1, wherein the processor is a component of a device selected from the group comprising:

an embedded mobile PDA (personal digital assistant) computing device operable by battery power;

a cell phone;

a smart phone;

a notebook computer;

a desktop PC (personal computer);

a workstation;

a server;

a mainframe computer; and

an Internet appliance.

10. A processor-readable medium comprising processor-executable instructions configured for associating a software instruction with an amount of power consumed by executing the software instruction.

11. A processor-readable medium as recited in claim 10, wherein the associating comprises generating a power profile that matches software instructions executing on an embedded device with corresponding power consumption values measured during execution of the software instructions.

12. A processor-readable medium comprising processor-executable instructions configured for:

measuring power consumption of software instructions executing on a target computing device;

converting analog power measurements into digital power measurements; and

transmitting the digital power measurements to a host computer.

13. A processor-readable medium as recited in claim 12, comprising further processor-executable instructions configured for storing the digital power measurements in a memory after the converting.

14. A processor-readable medium as recited in claim 12, wherein the transmitting comprises:

receiving a request for the digital power measurements from the host computer; and

transmitting the digital power measurements to the host computer based on the request.

15. A processor-readable medium as recited in claim 12, wherein the transmitting comprises transmitting the digital power measurements to the host computer at preset time intervals.

16. A processor-readable medium as recited in claim 12, wherein the target computing device is selected from a group comprising:

an embedded mobile PDA (personal digital assistant);

a cell phone;

a smart phone;

a notebook computer;

a desktop PC (personal computer);

a workstation;

a server;

a mainframe computer; and

an Internet appliance.

17. A method comprising generating a power profile that associates a software instruction with an amount of power consumed during execution of the software instruction.

18. A method as recited in claim 17, wherein the execution of the software instruction is performed by a processor on a target computing device and the amount of power consumed is an amount of power consumed by the processor.

19. A method as recited in claim 17, wherein the generating comprises:

identifying the software instruction executing on a processor;

receiving power consumption data from a power measurement circuit; and

correlating the power consumption data with the identified software instruction.

20. A computer comprising a power profiler configured to identify software instructions executing on a processor, receive power consumption data, and correlate the power consumption data with the software instructions such that each software instruction is associated with a power consumption value indicating an amount of power consumed during the executing of the software instruction.

21. A computer as recited in claim 20, further comprising a lookup table, the power profiler further configured to monitor a program counter on the

processor and to identify the software instructions through the lookup table based on the program counter.

22. A computer as recited in claim 20, further comprising a power profile having a plurality of power consumption values each paired with a corresponding software instruction to indicate an amount of power consumed during execution of the corresponding software instruction.

23. A computer comprising a power profiler configured to generate a power profile that correlates software instructions with power consumed during execution of the software instructions.

24. A computer comprising:

means for identifying instructions executing on a processor;

means for receiving power consumption data from a power measurement circuit; and

means for generating a power profile that correlates the power consumption data with the identified instructions.

25. A computer as recited in claim 24, wherein the means for identifying instructions comprises:

means for interrupting the processor;

means for sampling a program counter of the processor; and

means for determining an instruction based on the program counter.

26. A computer as recited in claim 24, wherein the means for receiving comprises:

means for querying the power measurement circuit; and

means for receiving digital power readings from the power measurement circuit based on the querying.

27. A power measurement circuit comprising:

means for measuring power consumption of software instructions executing on an embedded device;

means for converting analog power measurements into digital power measurements; and

means for transmitting the digital power measurements to a host computer in response to a query from the host computer.

28. A power measurement circuit as recited in claim 27, further comprising means for storing the digital power measurements.

29. A computer comprising:

a processor;

instructions stored in a memory and executable on the processor; and

a power measurement circuit configured to measure power consumed by the processor during execution of each instruction.

30. A computer as recited in claim 29, further comprising an analog to digital converter integrated as part of the power measurement circuit and configured to convert analog power signals to digital power consumption data.

31. The computer of claim 29 implemented as a device selected from the group comprising:

an embedded mobile PDA (personal digital assistant);

a cell phone;

a smart phone;

a notebook computer;

a desktop PC (personal computer);

a workstation;

a server;

a mainframe computer; and

an Internet appliance.

32. A system comprising:

a power profiler configured to correlate an identified software instruction with an amount of power consumed during execution of the identified software instruction;

a lookup table having information for identifying the identified software instruction; and

a power profile generated by the power profiler and having power consumption values and identified software instructions, each power consumption value paired with a corresponding identified software instruction.

33. A system as recited in claim 32, further comprising:

a power measurement circuit configured to measure the amount of power consumed during execution of the identified software instruction; and

an analog to digital converter configured as part of the power measurement circuit to convert analog power consumption measurements into digital power consumption data.

34. A system as recited in claim 33, wherein the power measurement circuit is a component of a target computing device on which the identified software instruction is executed.